We Claim:

1.   A method of controlling access to a volume at least a portion of which is on a storage-device such that communication between an input/output (I/O) initiator and the storage-device takes place via a stack of device objects (DOs) representing the volume, the method comprising:

    providing the stack, the DOs in the stack being arranged according to a first I/O state for the volume; and

    selectively switching to a second I/O state for the volume without completely tearing down the stack.

2.   The method of claim 1, further comprising:

    receiving an input/output request packet (IRP);

    changing I/O states based upon a mode-switching (MS) control-code included in the IRP.

3.   The method of claim 1, further comprising:

    changing I/O states according to at least one of a first transition and a second transition;

    the first transition going from a prevented-state in which I/O is blocked to a read-only-state in which access is restricted to read-only type access;

    the second transition going from the read-only-state to the prevented state.

4.   The method of claim 3, further comprising:

    incompletely tearing down, and then rebuilding, the stack in order to a achieve either the first or second transition.

5.   The method of claim 3, further comprising:

    changing states according to at least one of the first and second transitions, a third transition, a fourth transition, a fifth transition and a sixth transition;

the third transition going from the prevented-state to a full-access state in which full data-read and full data-write (full read/write) access is permitted;

the fourth transition going from the full-access state to the prevented-state;

the fifth transition going from the read-only state to the full-access state; and

the sixth transition going from the full-access state to the read-only state.

6.   The method of claim 5, further comprising:

incompletely tearing down, and then rebuilding, the stack in order to a achieve either the third or fourth transition.

7.   A machine-readable medium including instructions execution of which by a machine selectively controls access to a volume at least a portion of which is on a storage-device such that communication between an input/output (I/O) initiator and the storage-device takes place via a stack of device objects (DOs) representing the volume, the machine-readable instructions comprising:

a code segment that contributes to building the stack, the DOs in the stack being arranged according to a first input/output (I/O) state; and

a code segment for selectively switching to a second I/O state without completely tearing down the stack.

8.   An apparatus for controlling access to a volume at least a portion of which is on a storage-device such that communication between an input/output (I/O) initiator and the storage-device takes place via a stack of device objects (DOs) representing the volume, the apparatus comprising:

a memory in which is created the stack, the DOs in the stack being arranged according to a first input/output (I/O) state; and

filter driver means for selectively switching to a second I/O state without completely tearing down the stack.

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